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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

the application of

SCOTT COLLINS et al.

Serial No. 10/817,187

Filed April 2, 2004

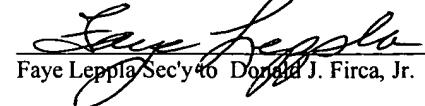
For POLYMERIZATION OF I-BUTENE  
IN HYDROCARBON MEDIA USING  
BIS(BORANE) CO-INITIATORS

) Group Art Unit 1713

) Confirmation No. 2157

**CERTIFICATE OF MAILING**

) I hereby certify that this correspondence was deposited with the  
United States Postal Service as Express Mail addressed to:  
Commissioner for Patents, P. O. Box 1450, Alexandria, VA  
22313-1450, on August 4, 2004.

  
Faye Leppia Sec'y to Donald J. Firca, Jr.

**INFORMATION DISCLOSURE STATEMENT**

**37 CFR §§1.97, 1.98**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §1.97, relating to the filing of an Information Disclosure Statement, the Applicants hereby submit the following in compliance with the duty of disclosure as set forth in 37 CFR §1.56.

Information or art known to the Applicants and having an extent of relevance to the present application has been listed on PTO Form 1449 attached hereto. It includes 6 United States patents, 4 foreign patents, and 13 Articles. The Applicants have employed PTO Form 1449 for the purposes of convenience of the Office and the Examiner.

No representation is made that the information is non-cumulative, or that the information represents the only or the best information. The Applicants do not admit that any of the information they have provided is necessarily prior to their invention but rather that it is information of which they are aware and that they believe should be provided to the Office in fulfillment of their duty of disclosure. Any

question that may arise regarding priority of a specific reference shall be resolved during prosecution.

The article entitled "Isobutene Polymerization Using a Chelating Diborane Co-Initiator" may include information relevant to portions of the present invention. However, since this publication was published by the inventor after the priority date of the present application, applicant respectfully submits that his publication fails to qualify as prior art under 35 U.S.C. section 102.

Respectfully submitted,

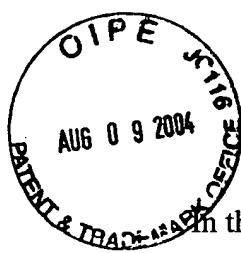


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Attorney for Applicant

August 4, 2004

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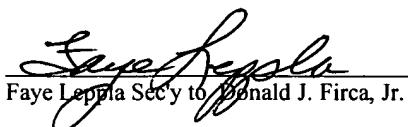
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**TRANSMITTAL SHEET**

Enclosed are the following documents:

Information Disclosure Statement (*with certificate of mailing*)

PTO Form-1449 (3 pages) (in duplicate)

Six (6) U.S. Patents

Four (4) Foreign Patents

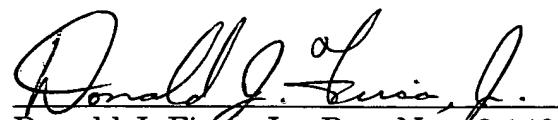
Thirteen (13) Articles

Return Receipt Postcard

**AUTHORIZATION TO CHARGE DEPOSIT ACCOUNT**

The Director is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment to Deposit Account No. 50-0959. Please use Reference No. 089498-0477 when charging the deposit account.

Respectfully submitted

  
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Attorney for Applicant

August 4, 2004

Form PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 8-83) PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 089498-0477	SERIAL NO. 10/817,187
INFORMATION DISCLOSURE CITATION 09 2004 (Use several sheets if necessary)			
APPLICANT Scott Collins et al.		FILING DATE April 2, 2004	
GROUP 1713			

## U.S. PATENT DOCUMENTS

*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date (If Appropriate)
	5,198,401	3/1993	Turner et al.	502	155	
	5,376,744	12/1994	Kennedy et al.	526	89	
	5,448,001	9/1995	Baird	526	134	
	5,703,182	12/1997	Langstein et al.	526	185	
	6,008,307	12/1999	Shaffer	526	190	
	6,291,695	9/2001	Marks et al.	556	53	

## FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes      No
	DE 198 36 663 A1	2/2000	Germany	C08 F4/643		
	WO 95/29940	11/1995	PCT	C08 F10/00		
	WO 99/06413	2/1999	PCT	C07 F5/02		
	WO 00/04061	1/2000	PCT	C08 F10/10		

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	“Isobutene Polymerization Using Initiating Systems Based on C <sub>6</sub> F <sub>4</sub> -1,2-[B(C <sub>6</sub> F <sub>5</sub> ) <sub>2</sub> ] <sub>2</sub> (1-F <sub>4</sub> )”, The University of Akron, Dept. of Polymer Science, April 17, 2003, Goodyear Auditorium, Stewart P. Lewis, pgs. 1-46.
	“Carbocationic Initiation of Polymerization of Vinyl Ethers and N-Vinylcarbazole Induced by (η <sup>5</sup> -C <sub>5</sub> Me <sub>5</sub> )TiMe <sub>2</sub> (μ-Me)B(C <sub>6</sub> F <sub>5</sub> ) <sub>3</sub> . The First Examples of Polymerization of This Class of Electron-Rich Olefins by a Metallocene-like Initiator”, Q. Wang and M. C. Baird, Macromolecules, Vol. 28, No. 24, 1995, pgs. 8021-8027.
	“Carbocationic Alkene Polymerizations Initiated by Organotransition Metal Complexes: An Alternative, Unusual Roal for Soluble Ziegler-Natta Catalysts”, M. C. Baird, Chem. Rev. 2000, 100, pgs. 1471-1478.

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\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes      No

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	"Isobutene Polymerization Initiated by $[CP^*TiMe_2]^+$ in the Presence of a Series of Novel, Weakly Coordinating Counteranions", K. R. Kumar, C. Hall, A. Penciu, M. J. Drewitt, P. J. McInenly, and M. C. Baird, Journal of Polymer Science: Part A: Polymer Chemistry, Vol. 40, 2002, pgs. 3302-3311.
	"Highly Lewis Acidic Bifunctional Organoboranes", W. E. Piers, G. J. Irvine, and V. C. Williams, Microreview, Eur. J. Inorg. Chem. 2000, EurJIC 047/00, pgs. 1-12.
	"The $[Zr(N\{SiMe_3\}_2)_3]^+$ Cation as a Novel Initiator for Carbocationic Isobutene Homo- and Isobutene/Isoprene Co-Polymerizations", A. G. Carr, D. M. Dawson, and M. Bochmann, Macromol. Rapid Commun. 19, 1998, pgs. 205-207.
	"The Aluminocenium Cation $[Al(C_5H_5)_2]^+$ : A Highly Effective Initiator for the Cationic Polymerization of Isobutene, M. Bochmann and D. M. Dawson, Communications, Angew. Chem. Int. Ed. Engl. 1996, 35, No. 19, pgs. 2226-2228.
	"Isobutene Polymerization using a Chelating Diborane Co-Initiator", S. P. Lewis, N. J. Taylor, W. E. Piers, and S. Collins, J. Am. Chem. Soc. 2003, 125, pgs. 14686-14687.

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	“Noncoordinating Anions in Carbocationic Polymerizations”, T. D. Shaffer and J. R. Ashbaugh, Journal of Polymer Science: Part A: Polymer Chemistry, Vol. 35, 1997, pgs. 329-344.
	“Zirconocenes as Initiators for Carbocationic Isobutene Homo- and Copolymerizations”, A. G. Carr, D. M. Dawson, and M. Bochmann, Macromolecules, Vol. 31, No. 7, 1998, pgs. 2035-2040.
	“Cationic Polymerizations at Elevated Temperatures by Novel Initiating Systems Having Weakly Coordinating Counteranions. 1. High Molecular Weight Polyisobutylenes”, Z. Pi, S. Jacob, and J. P. Kennedy, Ionic Polymerizations and Related Processes edited by Judith E. Puskas, part of the NATO Science Series, Series E, Applied Sciences, vol. 359, 1999, pgs.1-12.
	“Highest Molecular Weight Polyisobutylenes and Isobutylene Copolymers by Initiating Systems Having Weakly-Coordinating Counteranions”, J. P. Kennedy, Z. Pi, and S. Jacob, Polymeric Materials: Science and Engineering Proceedings of the A.C.S. Division of Polymeric Materials, vol. 80, 1999, pg. 495.
	“Carbocationic Polymerizations with Noncoordinating Boron Gegenions”, T. D. Shaffer and J. R. Ashbaugh, Book of Abstracts, 211th ACS National Meeting, New Orleans, LA, March 24-28 (1996), Publisher: American Chemical Society, Washington D.C., pgs. 339-340.

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